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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,654	10/01/2003	Koji Takinami	MTS-3475US	8959
23122	7590	06/13/2005	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980				CHANG, JOSEPH
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/676,654	TAKINAMI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Joseph Chang	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 23 May 2005.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 13-17/13 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-8, 12, 17/1, 18 is/are rejected.
- 7) Claim(s) 9-11 is/are objected to.
- 8) Claim(s) 1-18 are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 October 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____.   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/1/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Claims 1-12, 17/1, 18 drawn to Group 1 in the reply filed on 5/23/05 is acknowledged.

Claims 13-17/13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/23/05.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

Claim 5 is objected to because of the following informalities: the term "bases" or "collectors" are normally used in BJT type of transistors but no specific type of transistors are recited. Appropriate correction is required. Examiner interprets the term as gates or drains respectively since no specific transistor types are recited.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 12, 17/1, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Seppinen et al., US Patent No. 6,833,769.

Regarding Claims 1 and 12, Seppinen et al. discloses a voltage-controlled oscillator (Figures 3 and 4) comprising: an inductor circuit (154) having an inductor (154); n pieces (three pairs) of variable capacitance circuit (200) having a variable capacitance element (212,214,216) and having blocking capacitors (242,244,234,236,226,228) of interrupting a direct current at both ends (233,235) thereof, a negative resistance circuit (158), and reference voltage generation means (is necessarily present in Vbias 262 shown in Figure 4, Col. 7, line65- Col.8, line 5 which includes resistors 222,224,230,232,240,238,246,248) of generating a reference voltage from a power supply voltage (Col. 7, line65- Col.8, line 5), and wherein said inductor circuit, said n pieces of variable capacitance circuit and said negative resistance circuit are connected in parallel (see Fig. 3); a predetermined reference voltage (262) is inputted to some terminals (262, 220) of the variable capacitance elements of said n pieces of variable capacitance circuit; a control voltage (Vt, 231) of feedback-controlling an oscillation frequency is inputted to the other terminals (middle nodes of 212,214,216) of the variable capacitance elements (212,214,216) of said n pieces of variable capacitance circuits (200); and of said n pieces of variable capacitance circuits (200), the predetermined reference voltage (262) inputted to one of the terminals of the variable capacitance elements of at least two of said n pieces of variable capacitance

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circuit is different (voltages at 262, each gates of 212,214,216 and the ground are different).

Regarding Claims 2 and 3, Figure 4 shows a voltage divider configuration 222,224,230,232,240,238,246,248 that arranged in decreasing order of reference voltages and inherently exist voltage difference as recited in the claim because the structure is the same as the device in the specification of this application.

Regarding Claim 17/1, Figure 1 shows a radio communication apparatus as recited in the claim.

Regarding Claim 18, the method as recited in the claim is inherently present in the structure as discussed above in Claim 1 rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 4-8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seppinen et al. in view of Ochiai, US Patent No. 6,509,805.

Regarding Claims 4-5, as discussed above, Seppinen et al. discloses a VCO including resistors connecting in series. However, Seppinen et al. does not show series-connected one resistor and n pieces of diode formed by transistors. As would have been well known in the art, such a configuration as shown in Ochiai provides equal amount of sequentially reducing voltages to control capacitance of varactors (col. 4, lines 15-32), and therefore, it would have been obvious to one of ordinary skill in the art to use such structure because such a modification would have provided the benefit of equal amount of sequentially reducing voltages to control capacitance of varactors.

Regarding Claims 6-7, as discussed above, Seppinen et al. discloses a VCO except usage of an active filter. As would have been well known in the art, such a usage of active filter is to enhance noise reduction from a power supply, and therefore, it would have been obvious to one of ordinary skill in the art to include an active filter because such a modification would have provided the benefit of filtering noises from the power supply.

Regarding Claim 8, as discussed above, Seppinen et al. discloses a VCO including output sides of reference voltages except the output sides are not grounded via capacitive elements. As would have been well known in the art, such a configuration is to filtering noises from the power supply, and therefore, it would have been obvious to one of ordinary skill in the art to include capacitors to shunt the ground

because such a modification would have provided the benefit of filtering noises from the power supply.

***Allowable Subject Matter***

Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Seppinen et al., taken alone or in combination of other references, does not teach or fairly suggest "a frequency band setting variable capacitance circuit as set forth in claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mourant et al. discloses a band-switched VCO.

Kwek et al. discloses a VCO with usage of blocking capacitors to linearize the capacitance response of a varactor circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph Chang  
Patent Examiner  
Art Unit 2817